

REMARKS

Claim Amendments

Upon entry of the foregoing amendment, claims 1-9 are pending in the application. Support for the amendments to the claims can be found, for example, throughout the specification and in the claims as originally filed. Applicants respectfully request entry of the above amendment and submit that the above amendment does not constitute new matter.

Objection to the Claims

Claim 1 was objected to because the claim is allegedly not written in the alternative.

Applicants respectfully traverse and assert that claim 1 is written in the alternative by including the recitation of “or.”

Claims 5 and 8 were objected to because of minor informalities. Applicants have amended claims 5 and 8 rendering the objection *moot*.

In view of the above, Applicants respectfully request withdrawal of the objections to the claims.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1 and 7 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the Office Action states that Applicants cannot define a group, *e.g.*, R5 and R6, with the same variables as R5 and R6, and thus “R5 and R6” cannot be substituted with a “NR5R6” substitution.

Applicants respectfully traverse this rejection and assert that “R5” and “R6” are not being substituted by “NR⁵NR⁶.” Accordingly, Applicants respectfully request withdrawal of this rejection.

Claim 9 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite as to whether “PDE7” is meant to encompass all “PDE7” isoforms.¹

Applicants respectfully traverse and assert that “PDE7” is used throughout the specification — consistent with the skill of one in the art — as a general term. The specification

¹ Applicants note the Office Action includes claim 23 in this rejection. Applicants believe this is a typographical error as there is no claim 23 in this application.

provides sufficient structural and functional parameters to adequately define "PDE7" as encompassing each of the PDE7 isoforms. As such, one of skill in the art would recognize that the specification provides sufficient structural and functional parameters to adequately define PDE7.

Applicants respectfully request reconsideration and withdrawal of the above rejections.

Rejections Under 35 U.S.C. § 112, First Paragraph — Enablement

Claims 1-9 stand rejected under 35 U.S.C. § 112, first paragraph, because the specification while enabling for *other forms*, does not provide enablement for *solvates*. Applicants have amended claims 1, 8 and 9 rendering the rejection *moot*.

Claims 1-9 are further rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Applicants respectfully traverse.

At the outset, Applicants note that the claims are drawn to compounds, pharmaceutical compositions comprising a compound or pharmaceutically acceptable salts thereof, and PDE 7 inhibitors comprising a compound or pharmaceutically acceptable salts thereof. Accordingly, the claims are drawn to compositions, and not methods of use or treatment as stated in the Office Action. *See* O.A. at 5. It is well established under 35 U.S.C. § 112, 1st paragraph that a compound or composition claim satisfies the enablement requirement so long as Applicants provide enablement for a single application. The instant application has met this requirement.

Applicants respectfully submit that the specification provides the requisite disclosure to teach one of skill in the art how to make and use the claimed compositions. For example, the specification provides formulas, defines functional groups and discloses physiochemical data for the claimed compounds. *See e.g.*, pages 4-9 and 43-55 of the specification. The specification also includes a detailed explanation of the method for producing the compounds, methods for evaluating PDE7 inhibiting effect and PDE7 inhibition test data for several compounds. *See e.g.*, page 9, line 30 to page 42, line 26 of the specification. Further, a person of skill in the art at the time the application was filed was well-versed in chemistry and its techniques and by using the guidance supplied by the specification could synthesize the claimed compounds.

The Office Action cites a 2002 article for the proposition that "PDE7 inhibitors may be useful for the treatment of asthma and allergic disease... [but are] only suggestive of utility for PDE7 inhibitors." *See* O. A. at 6. The Office Action concludes by stating that "as of the filing

date, there were no references which provided firm evidence that inhibition *per se* of PDE7 isoforms is of any established use.” *Id.* The Office Action also cites to Castro *et al.* (2005) for the propositions that a utility for PDE7 inhibitors has not been established and that there is only a “possibility of treating inflammation with a PDE7 inhibitor.” *See* O. A. at 6 and 7. Castro states, “PDE7 has the potential to regulate human T cell functions including cytokine production, proliferation and expression of activation markers. However, its specific role in T cell function is still unclear since a *selective PDE7 inhibitor had not been established.*” (emphasis added) Castro at 232.

To the contrary, the specification provides the requisite guidance on how to make and use the full breadth of the disclosed compounds. For example, the specification provides data that the instantly claimed compounds are selective PDE7 inhibitors. *See* “Biological Test 1” at page 20, line 4 to page 21, line 28. Indeed, the specification teaches that the claimed compounds selectivity is more than 10 times compared to PDE 4. *See* page 21, lines 22-23. These PDE7 inhibiting compounds suppress T-cell activation. As T cell activation is known to be involved in the aggravation of pathological states in various diseases, such as allergic diseases and inflammatory or immunological diseases as shown in the specification, the instantly claimed PDE7 inhibitors are useful in treating various T-cell mediated diseases such as allergic diseases and inflammatory or immunological diseases. Accordingly, the specification provides the necessary guidance to make and use selective PDE7 inhibitors of the claimed invention.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection.

Claim Rejections - 35 U.S.C. § 103

Claims 1-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,677,335 (“the ‘335 patent”) and U.S. Patent 6,407,114 (“the ‘114 patent”). Applicants respectfully traverse this rejection.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* M.P.E.P. §§ 2142-2143.

Applicants respectfully submit that neither the '335 patent nor the '117 patent, alone or in combination, teaches or suggests the claimed invention.

The Office Action states that the '335 patent discloses substituted pyrazolopyrimidinones, but does not teach the claimed compounds, and in particular, does not teach specific substitutions at various positions. *See* O. A. at 9 and 10. However, the Office Action takes the position that making these substitutions is obvious, and one of skill in the art would be motivated to prepare these positional isomers. *See* O.A. at 10.

Applicants respectfully assert that the '335 patent does not teach or suggest each and every limitation of the claims. As the Office Action recognizes, the '335 patent does not teach specific substitutions. In addition, the '335 patent is directed to compounds that are potent and selective inhibitors of PDE5 ("cGMP-specific PDE_v"), rather than PDE7 inhibitors. *See e.g.*, abstract and col. 1, lines 8-14. Furthermore, the '335 patent does not teach or suggest modifying the compounds disclosed therein in any manner to make them PDE7 selective.

Accordingly, Applicants respectfully submit that the '335 patent fails to provide any teaching or suggestion to a person of ordinary skill in the art to modify the compounds therein or the compounds described by the '117 patent as to make substitutions necessary to make a selective PDE7 inhibitor.

Like the '335 patent, the '117 patent fails to teach the specific substitutions and is also directed compounds that are potent and selective inhibitors of PDE5, rather than PDE7. *See e.g.*, Col. 1, lines 6-11 of the '117 patent. The changes necessary to alter the specificity from PDE5 to PDE7 is neither taught, suggested nor contemplated by the '117 patent. Indeed, the '117 patent fails to provide any teaching or suggestion to a person of ordinary skill in the art to modify the compounds therein or the compounds described by the '335 patent as to make substitutions necessary to make a selective PDE7 inhibitor.

The Office Action asserts that these structure differences between the prior art and the claim compounds are, "structurally obvious even in the absence of a teaching to modify" because isomers preparable by the same method are expected to have the same properties and cites a string of case law to support this assertion. *See* O. A. at 10 and 11.

However, the claimed compounds are not isoforms or homologues of the compounds described by the '335 patent or the '117 patent. The case law cited by the Office Action on the subject of obviousness is only applicable to isomers of a compound, not to functionally unrelated

compounds that may share similar characteristics. *See e.g.*, M.P.E.P. § 2144.09. Indeed, *In re Schecter and LaForge*, cited by the Office Action, states, “a novel and useful chemical compound which is homologous or isomeric with compounds of the prior art is unpatentable unless it possesses some *unobvious or unexpected beneficial property not possessed by the prior art compounds*.” (emphasis added) 98 U.S.P.Q. 144, 150, 205 F.2d 185, 190. In the instant case, the compounds of the ‘335 patent and the ‘117 patent are selective PDE5 inhibitors, rather than PDE7 inhibitors, and as such, do not have the same properties as the claimed compounds. Accordingly, a person of ordinary skill in the art would not have found it obvious to modify or combine the disclosure of the ‘335 patent and/or the ‘117 patent to alter the PDE5 inhibitor compounds disclosed therein, to generate the instantly claimed PDE7 inhibitor compounds because there is no suggestion or teaching to alter compounds selective for selective PDE5 inhibition to achieve selective PDE7 inhibition.

The statutory standard of §103 is whether the invention, considered as a whole, would have been obvious to one of ordinary skill in the art, not whether it would have been obvious for one of ordinary skill in the art to try various combinations. *Akzo N.V. v. E.I. duPont de Nemours*, 1 U.S.P.Q.2d 1705, 1707 (Fed. Cir. 1987). In the instant case, the Office Action cites to references directed to selective PDE5 inhibitors and does not provide motivation for altering the compounds to be selective for PDE7. However, one cannot pick and choose among individual parts of assorted references as a mosaic to recreate a facsimile of the claimed invention. *Akzo N.V. v. International Trade Commission*, 1 U.S.P.Q.2d 1241, 1246 (Fed. Cir. 1986). Indeed, each of the cited references fails to provide the motivation to combine their disclosures to achieve the claimed invention.

Finally, assuming *arguendo*, it were proper to combine the references, it has not been established in the Office Action that the combination would have yielded the selective PDE7 inhibitors of claim 1. Further, Applicants submit that the claims dependent therefrom are not obvious for the same reasons discussed above.

Applicants respectfully request reconsideration and withdrawal of the rejection.

Provisional Obviousness-Type Double Patenting

The Office Action provisionally rejected claims 1-9 under the judicially created doctrine of obviousness-type double patenting over claims in the '335 patent. Applicants traverse this rejection.

In order to assert a provisional double patenting rejection, there must be two co-pending applications. *See e.g.*, M.P.E.P. § 804. In the instant case, the provisional double patenting rejection is between an issued patent and a co-pending application. Accordingly, Applicants respectfully submit that the rejection is improper and respectfully request withdrawal of the rejection.

Applicants note that the Office Action makes reference to Application No. 10/866,198. Applicants respectfully request clarification as to whether the Office Action intended to recite this application number instead of the '335 patent.

CONCLUSION

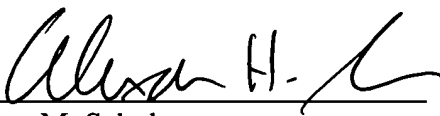
Applicants respectfully submit that claims 1-9 are in condition for allowance, and such disposition is earnestly solicited. Should the Examiner believe that any patentability issues remain after consideration of this Response, the Examiner is invited to contact the Applicants' undersigned representative to discuss and resolve such issues.

Respectfully submitted,

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